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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,643	10/05/2001	Wendy J. Davis-Hoover		2230

7590

07/07/2003

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EXAMINER

AFREMOVA, VERA

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 07/07/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/970,643

Applicant(s)

Davis-Hoover et al.

Examiner

Vera Afremova

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 25, 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

Status of claims

Claims 5 and 6 as amended and new claim 7 are pending and under examination. Claims 1-4 are canceled by applicants [Paper No.4 filed 4/25/2003].

Deposit

The deposit requirement for *Pseudomonas aeruginosa* CHL004 accession number ATCC 55937 has been met in the Paper No. 4 filed 4/25/2003.

Response to Arguments

Applicants' arguments filed 4/25/3004 [Paper NO. 4] have been fully considered but they are not persuasive for the reasons

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5 and 6 as amended and new claim 7 remain/is rejected under 35 U.S.C. 103(a) as being unpatentable over Vesper et al. [U] taken with US 4,728,427 [A] and US 5,863,750 [B].

Claim 7 is directed to a composition comprising *Pseudomonas aeruginosa* strain CHL004 which is viable and/or "growing" on a solid matrix containing iron. The composition is intended for decontamination or removal of arsenic and/or cadmium from an environment.

Vesper et al. [U] is relied upon for the disclosure of a product comprising viable *Pseudomonas aeruginosa* strain CHL004 growing on a solid matrix such as solidified medium or filters placed on soil sample. The cited reference teaches the use of the stain CHL004 for

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decontamination or removal of heavy metal such as lead from an environment or from contaminated soil. The cited reference is lacking disclosure related to the use of solid matrix materials including iron containing solid matrix.

However, US 4,728,427 [A] teaches that the microbial products comprising various representatives of *Pseudomonas species* (col. 4, line 26), which are capable to reduce amounts of heavy metals including metals such as cadmium, lead and/or arsenic (col. 2, line 38; col. 4, line 25 and line 36) in contaminated environments, are immobilized on solid matrix materials including plastic or synthetic polymer (col. 5, lines 9-10). The immobilized microbial preparations allow for a continuous process of decontamination with periodic withdrawals and separations of microbial cells and metals from environment (col. 5, lines 5-15).

Further, US 5,863,750 [B] teaches the use of various solid support materials for immobilization of microbial cells intended for detoxification of contaminated environments. These support materials include activated carbon and/or iron which facilitates the recovery of microbial products due to magnetic ability (col. 33, lines 26-31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to use various solid matrix/support materials in the microbial preparations intended for environmental decontamination comprising various microbial strains including strains belonging to *Pseudomonas sp.* or strain CHL004 with a reasonable expectation in success for obtaining products effective in environmental decontamination including removal or reduction of heavy metals because these solid matrix/support materials have been known and

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used as adequately demonstrated by the cited prior art. One of skill in the art would have been motivated to use microbial stains including stain CHL004 in a form comprising solid matrix/support for the expected benefit of immobilized microbial preparations in a continuous process of decontaminating the heavy metal containing environments which allows to maximize microbial removal of heavy metals and to facilitate withdrawal or separation of microbial cells and metals from the environment under treatment. One of skill in the art would have been motivated to incorporate iron into solid support of bacterial preparations for the expected benefit in facilitating withdrawal or separation of microbial preparations from the environment due to magnetic ability of iron containing compositions as taught/suggested by the prior art. Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary. It would be within the purview of one having ordinary skill in the art to adjust stoichiometric equivalents of chemical elements or ions involved in a particular chemical reaction or process of choice as intended.

The claimed subject matter fails to patentably distinguish over the state art as represented by the cited references. Therefore, the claims are properly rejected under 35 U.S.C. § 103.

With regard to the claim rejection under 35 U.S.C. § 103 applicants' argument that the prior art does not teach any organism growing on a solid matrix with iron is not found persuasive because viable ("growing") bacterial preparations immobilized onto solid support and intended for detoxification of environment are known in the prior art and the prior art also teaches

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incorporation of iron into solid bacterial support in order to provide for recovery of bacterial preparations from environment as adequately demonstrated by US 5,863,750. The presently claimed strain belonging to *Pseudomonas* is not a novel strain and it has been taught as useful for recovery of heavy metals from contaminated environment {Vesper et al. [U]}. Moreover, it is known that bacterial strains belonging to *Pseudomonas* are capable to remove heavy metals including lead, arsenic and cadmium from contaminated environment {US 4,728,427 [A]}. Thus, the claimed composition with already known bacterial strain immobilized on solid support and intended for the purpose of waste decontamination is clearly obvious over the prior art.

No claims are allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (703) 308-9351. The examiner can normally be reached on Monday to Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vera Afremova

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July 3, 2003.

SANDRA E. SAUCIER
PRIMARY EXAMINER

